

D.13 Recreational and Commercial Fisheries

D.13.1 Environmental Baseline

D.13.1.1 Regional Overview

The SFPP Proposed Project pipeline traverses through the western portion of Suisun Bay and the northern portion of the Sacramento–San Joaquin River Delta. The Carquinez Strait connects Suisun Bay to San Pablo and San Francisco Bays; the three bays and the Strait make up the San Francisco Bay estuary. The bays and delta create the San Francisco Bay–Sacramento–San Joaquin Delta estuary, which is the largest estuary on the west coast. Suisun Bay is just west of the confluence of the Sacramento and San Joaquin Rivers. The Strait and Suisun Bay serve as the transition areas between the ocean influence in the Bay and inland freshwater influence of the Sacramento and San Joaquin Rivers. Major fisheries in the Strait and Suisun Bay include Pacific salmon, sturgeon, shrimp, striped bass, a host of recreational fisheries, and about 15 marinas, piers, and public recreation areas.

The Sacramento–San Joaquin Delta (Delta or Bay-Delta) is an 1,100-square-mile region located 50 miles east of San Francisco. The Delta is a network of several hundred islands, interconnected by 700 miles of waterways. Recreational fisheries are popular and the area is served by about 50 public and private fishing access facilities.

The Bay-Delta is fragile and imperiled by proximity to intensive human activity and development. Long-term degradation of the Bay-Delta is caused by sewage, industrial waste, agricultural drainage, dredging, filling of marshes, oil development and spills, freshwater diversions, introduction of non-native plant and animal species and degradation of upstream areas (CALFED Bay-Delta Program, 1999; California Department of Fish and Game, 2001; and California State Lands Commission, 1991).

D.13.1.2 Environmental Setting: Proposed Project

Fisheries¹ for the Bay and Delta are described using several information sources. For the Bay, California Department of Fish and Game (CDFG) catch and landing statistics and written materials are used to describe recreational and commercial fisheries. A short description of the CDFG fisheries databases is provided to explain their uses and limitations.

To standardize fish landing reporting, CDFG divides Bay waters into reporting blocks. CDFG provides both commercial and charter boat fish landings by fishing area or block (where the fish are caught) and by port or region (where the fish are landed). Fish dealers, processors, or charter boat operators record landings data. For commercial fisheries, data concerning species, weight, catch block, mode (gear type), and price paid to fishing operators are provided to CDFG. Charter boat operators report to CDFG the number of fish caught on their boats.

¹ Fisheries are defined, by broad definition of the Federal Fishery Conservation and Management Act (FCMA), as fish, their habitat, and fishing activities.

For Delta fisheries the Delta Protection Commission Delta Atlas and related materials are the primary information sources. Other written materials are used when pertinent.

Fisheries in the project area are addressed in this section in two regions: those of the San Francisco Bay Estuary and those of the Sacramento–San Joaquin River Delta

San Francisco Bay Estuary – Carquinez Strait and Suisun Bay

This area includes portions of Contra Costa and Solano Counties. The Walnut and Grayson Creeks, Pacheco Creek, Peyton Slough, and Carquinez Strait pipeline water crossings are located in Contra Costa County. The first three waterways are tributary to the Bay; the Carquinez Strait crossing is the longest, at a little over a mile. In Solano County there are 24 proposed water crossings between the Strait and Highway 12. These crossings are in the vicinity of Suisun Marsh and cross streams that are tributary to the Marsh, including Sulphur Springs Creek, Cordelia Slough, Suisun Creek, Ledgewood Creek, and Peytonia Slough. In addition, Walnut Creek, Grayson Creek, Pacheco Creek, Carquinez Strait, and Cordelia Slough are navigable and potentially accessible by boat.

The portions of the pipeline that cross Carquinez Strait and streams tributary to Suisun Marsh are located in CDFG fish blocks 308 and 302. Block 308 encompasses the Carquinez Strait and western extent of Suisun Bay; block 302 includes the remainder of Suisun Bay.

Suisun Bay fisheries and shallow fish habitat extend into Suisun Marsh and streams and sloughs tributary to the Strait and Suisun Bay. Suisun Bay supports fisheries such as longfin smelt, Pacific staghorn sculpin, northern anchovy, starry flounder, striped bass, sturgeon, perch, American shad and yellowfin goby. Streams, sloughs and drainages including Grayson, Walnut, Pacheco Creeks, Peyton Slough, Sulphur Springs Creek, Cordelia Slough, Suisun Creek, Ledgewood Creek, and Peytonia Slough support shallow water habitat for various species including sturgeon and American shad (Chambers Group, Inc. 1994). Biological Resources section D.4.1.2 (Environmental Setting: Proposed Project Section 1 (mp 0-6.1) – Contra Costa County and Carquinez Strait) documents that Grayson, Walnut and Pacheco Creeks support fish popular with anglers including carp, striped bass, goby and chinook salmon. The Walnut Creek system, although degraded, may support steelhead. Peyton Slough supports striped bass, goby, and staghorn sculpin. Suisun Marsh is leveed and supports shallow water habitat and is an important nursery for chinook salmon and striped bass. Due to the variability of freshwater inflows and tidal fluctuations fishing interests are very mobile as they follow and hunt their prey. They are known to be opportunistic and to fish in almost any type of waterway.

In 2001 the California Department of Health Services (CDHS) and San Francisco Estuary Institute (SFEI) conducted a seafood consumption study and surveyed anglers throughout the Bay estuary. Surveyed boat and shoreside anglers in Vallejo and Martinez consumed white croaker (38% of anglers), leopard shark (37%), and striped bass (24%) caught in the estuary. Two percent of anglers targeted and consumed sturgeon and about 1% of anglers targeted and consumed jacksmelt, halibut, and starry flounder (Ujihara, 2002). CDHS advisories warn anglers to limit their consumption of fish caught in the Estuary to no more than 2 meals a month. Despite this warning 9% of anglers eat estuary caught fish at levels above the advisory. Demographic data from SFEI 2001 shows that Asians and African Americans were more likely than other ethnic groups to eat above the advisory limit.

Recreational Charter/Private Boat Recreational Fisheries

Marinas near the Carquinez Strait crossing include Crockett, Martinez, Benicia, Glen Cove, and Vallejo. In Suisun Bay, Port Suisun, Suisun Marina and Boat Works, Pierce Harbor, Solano Yacht Club, Harris Yacht Harbor, and McAvoy Yacht Harbor service sport boats. In all, eleven facilities provide launches and berths for charter and private boats. The area in the immediate vicinity of the Carquinez Strait crossing

supports American shad, Chinook salmon fry, shallow water fish habitat for numerous species and the Suisun Bay fishery. In addition the Carquinez Strait is an important migratory corridor for striped bass, Chinook salmon, Pacific herring, northern anchovy, white sturgeon and longfin smelt (Chambers Group, 2003).

Recorded charter boat catches in CDFG blocks 302 and 308 show that striped bass, spiny dogfish, sturgeon, and smelt are the most popular species caught in the area (Chambers Group, 2003). Private boat anglers are expected to follow similar fishing patterns.

Pier and Shore Recreational Fisheries

Access to the open water in the immediate area of the Carquinez Strait crossing is limited. Most shoreline access is provided in or near marinas and on or near several piers. Piers and public shoreline areas near the crossing include Crockett Marina and Dowrelio Pier, Martinez park and public pier, 9th Street Park and pier in Benicia, Benicia Marina and pier, Benicia State Recreation area, and Vallejo fishing pier and shoreline parks. Anglers have been known to catch flounder, sturgeon, shad, salmon, steelhead and striped bass from these areas (California State Coastal Conservancy, 1995).

Commercial Fisheries

The prominent commercial fishery in the vicinity of the Carquinez Strait crossing is the shrimp trawl fishery. The modern fishery, which began in 1965, has been entirely by beam trawl. Most shrimp are harvested for bait; a small percentage of catch is still reserved for human consumption. Live tanks are used on all vessels and shrimp are transported to local bait shops by truck in either the tanks or iced-down wooden trays.

From 1989 to 2001, recorded landings in block 308 totaled about 17,000 pounds. In block 302 only 140 pounds of shrimp were recorded as landed (Chambers Group, 2003). Along with shrimp, trawlers also harvest staghorn sculpin, and yellowfin goby, totaling 2,420 pounds and 2,269 pounds, respectively, over the same time period in block 308.

Current information indicates that shrimp trawling occurs in the northwestern portion of the Bay, including the Carquinez Strait, in waters near the pipeline crossing. Fishing also occurs in waters less than 20 feet deep in the channels of the Estuary's shallow reaches. In 1999 eight trawlers harvested shrimp in Carquinez Strait and adjacent areas (Chambers Group, 2003). Fishing occurs year round but landings usually peak during the months of June through November. Monthly variations in landings may have as much to do with changes in salinity in the water, as with fluctuations in demand by sport anglers (CDFG, 2001).

Sacramento–San Joaquin River Delta Fisheries

Delta waterways in Contra Costa, Solano and Yolo Counties including rivers, streams, creeks and sloughs in north and west of the Sacramento River and in the proposed pipeline corridor provide important spawning, rearing and feeding habitat for resident and migratory fishes (CALFED Bay-Delta Program 2000). The Delta is home to several migratory and resident game fish including catfish, sturgeon, steelhead, striped bass, large mouth (black) bass, American shad, Chinook salmon, crappie, bluegill, and carp. Fishing from boats occurs throughout the Delta navigable waterways. Fishing along the banks of Delta waterways occurs along much of the 1,100 miles of leveed shoreline. Since vehicular access is essential to most anglers, most bank fishing occurs on levees and berms closest to improved roads. Fishing also occurs at public fishing access points (Delta Protection Commission, 1997). About 43 resorts and marinas in the Delta provide boat launch facilities (Hal Schell, 1998).

Demographics of Delta anglers are being identified by scientists and public health officials who are studying contaminant concentrations in Delta fish and determining the level of consumption of the fish. A sampling survey was conducted in 1998 and focused on largemouth bass and white catfish. While the study found concentrations of mercury, PCB's, and DDT in some of the sampled fish it also found that anglers of different ethnic backgrounds fish in almost all types of waterways including rivers, streams, creeks, sloughs, irrigation canals, and ditches (Davis et al., 2000).

Contra Costa County

Proposed Project water crossings in Contra Costa County include Walnut and Grayson Creeks, Pacheco Creek, Peyton Slough, and Carquinez Strait. In the Delta and along the Sacramento and San Joaquin Rivers, Contra Costa County has a large number of public and private marinas that provide fishing access. Small and medium sized private marinas, which range from 50 or fewer berths to 160 berths, are located in the Bethel Island and Hotchkiss Tract areas, west of Antioch. Large marinas, ranging in size from 203 to 722 berths are located in Pittsburg and Antioch. Most launch ramps in the County are located within the marinas and total about 14. Public fishing sites include Antioch Regional shoreline, Clifton Court Forebay in Italian Slough, Franks' Tract State Recreation Area (for boats only), Riverview park in Pittsburg and Riverview Lodge pier (Delta Protection Commission 1997a). The portion of the Delta that encompasses Contra Costa County is the most popular location for boat and shore-based fishing (Delta Protection Commission, 1997).

Solano County

There are 22 water crossings in Solano County between Highway 12 and Yolo County along the proposed pipeline route. These waterways provide important spawning, rearing and feeding habitat for resident and migratory fishes. The crossings traverse streams and sloughs that support wetland habitat and are tributary to Delta waters, including Laurel Creek, Ulatis Creek, Maine Prairie Creek, and Hass Slough. Laurel and Ulatis Creeks are identified as supporting special status species Central Valley steelhead and Chinook salmon (URS, 2002).

Solano County has three privately owned marinas. Arrowhead Harbor on Prospect Island and Snug Harbor Resort south of the Sacramento Deep Water Ship Channel are medium sized marinas with launch ramps. Snug Harbor Resort also has a fishing pier. The County's largest marina is in Rio Vista and has 275 berths and a launch ramp. There are two additional public launch ramps in the County at Rio Vista Fishing Access and Sandy Beach Park south of Rio Vista (Delta Protection Commission 1997a). The portion of the Delta that encompasses Solano County is the second most popular location for boat and shore-based fishing (Delta Protection Commission, 1997).

Yolo County

There are 11 proposed pipeline water crossings in Yolo County between Road 104 and West Sacramento. These waterways provide important spawning, rearing and feeding habitat for resident and migratory fishes. Several of these crossings traverse waterways that support wetland habitat and are tributary to or are in the Delta including Putah Creek, Willow Slough, the Yolo Bypass, and Washington Lake. Putah Creek is identified as supporting special status species steelhead and Chinook salmon (URS, 2002).

Yolo County has five privately owned marinas. The two small marinas, Clarksburg and Stan's Yolo marinas, are located in Clarksburg and the three medium sized marinas are the Four Seasons, Sherwood Harbor and Sacramento Yacht Club located in West Sacramento on the Sacramento River. Two public launch ramps are located in Clarksburg (Clarksburg Public Fishing Access on Merritt Island) and West Sacramento (Broderick Boat Ramp). Fishing access is also provided at the Lake Washington Sailing Club (Delta

Protection Commission 1997a). Anglers lightly use Yolo County Delta waterways, whether they fish from boats or the Delta shoreline (Delta Protection Commission, 1997).

D.13.1.3 Environmental Setting: Existing Pipeline ROW Alternative

The Existing Pipeline ROW Alternative traverses generally the same area as the Proposed Project. In Solano County the Existing Pipeline ROW Alternative is located southeast of the proposed route and closer to Suisun and Honker Bays. Northeast of Fairfield the Existing Pipeline ROW Alternative traverses the County generally northwest of the proposed alignment and further from the Sacramento River, Deep Water Ship Channel, and Yolo Bypass. According to topographic maps and road atlases consulted for this analysis, the ROW alternative crosses wetlands and waterways tributary and closer to Suisun Bay and streams and sloughs tributary to but further from Delta waters.

D.13.1.4 Environmental Setting: No Project Alternative

The environmental setting for the No Project Alternative is the same as for the Proposed Program and Existing Pipeline ROW Alternative.

D.13.2 Applicable Regulations, Plans, and Standards

D.13.2.1 Federal and State

Applicable regulatory tools, including controls on human development and resource harvesting management, focus on ensuring responsible human activities. The San Francisco Bay Conservation and Development Commission (BCDC) regulates Bay coastal zone development. The California State Lands Commission (CSLC) manages and protects important natural resources and uses on public lands, including tidelands. Other agencies with authority to regulate development and ensure protection of aquatic resources include the U.S. Environmental Protection Agency, the Army Corps of Engineers, the U.S. Fish and Wildlife Service, and State and regional water quality control boards (Chambers Group Inc., 1994). The California Delta Protection Commission oversees land use in the Delta.

If resources are adversely affected to the extent that productive habitat or populations are reduced, fisheries managers will likely respond by limiting harvests. A key example is the salmon fishery and fish declines resulting from timber harvest and inland water development. Fisheries are overseen by several State and federal agencies, including the CDFG, Federal Secretary of Commerce, the Pacific Fisheries Management Council, and National Marine Fisheries Service.

D.13.3 Environmental Impacts and Mitigation Measures for the Proposed Project

D.13.3.1 Introduction

The information in Section D.13.1.2 demonstrates that the waterways in the Proposed Project pipeline corridor provide habitat for fish targeted by fishing interests, are accessible, and are used by fishing interests. Several of these waterways (identified in Section D.13.1.2) are navigable and tributary to either the Bay or Delta. Current information does not distinguish between public and private ownership of the pipeline water crossings. Due to the variety of targeted migratory and resident fish, differences in migratory patterns and variability in freshwater inflows and tidal influences in the Proposed Project area, fishing likely occurs year round. However, because of favorable weather, fishing activities are greatest in spring, summer, and fall. Fall is popular for salmon and winter is popular for sturgeon fishing.

D.13.3.2 Definition and Use of Significance Criteria

The following significance criteria will be used to assess the impacts of construction, operation, and accidents from the Proposed Project and alternatives.

- An impact would be considered significant if fishing opportunities are lost or displaced due to marina or fishing access closures; adverse effects on fish and habitat; or equipment or vessel loss, damage, or required subsequent replacement.

The following sections address potential impacts on recreational and commercial fisheries from construction, including restrictions on fishing access, fisheries habitat disturbance, and fuel spill and drill muds spills and accidents. During operation, significant impacts could result from pipeline product spills into waterways where recreational and commercial fishing occurs.

D.13.3.3 Impacts of Pipeline Construction

Construction of the proposed pipeline could impact fisheries in three general ways: by blocking access to waterways and parking areas, disturbance to habitat, and from construction accidents. Impacts could occur on both public and private property and from the three different methods of pipeline installation at water crossings: open cut, slick or conventional boring, and horizontal directional drilling (HDD). These methods will be used at 63 locations where the proposed pipeline route crosses streams, creeks, and sloughs in or near the Bay and Delta. In addition, the pipeline would cross the Carquinez Strait using an existing submerged pipeline that was trenched into the bed of the Strait about 36 years ago.

San Francisco Bay Estuary – Carquinez Strait and Suisun Bay

Impact RCF-1: Construction Impacts on Fishing Access

Pipeline construction across waterways could temporarily limit access to waterways for fishing. (Potentially Significant, Class II)

Impact Description

The proposed pipeline will cross 28 waterways tributary to the Bay in Contra Costa and Solano Counties. These waterways provide shallow water habitat for resident and migratory fish targeted by anglers. The waterways of greatest concern include Grayson, Walnut, Pacheco Creeks, Peyton Slough, Sulphur Springs Creek, Cordelia Slough, Suisun Creek, Ledgebrook Creek, and Peytonia Slough as they are identified as harboring specific migratory and resident fishes targeted by anglers. Construction will occur during the times of year most popular for fishing (spring, summer, and fall). In addition, Walnut Creek, Grayson Creek, Pacheco Creek, Carquinez Strait, and Cordelia Slough are navigable and potentially accessible by boat.

The significance criterion defined in Section D.13.3.2 states that an impact would be considered significant if fishing opportunities were lost or displaced due to marina or fishing access closures. Shore side fishing access at the 28 crossings, except for the Carquinez Strait (where an existing pipeline would be used) would likely be restricted during construction of those specific pipeline segments, resulting in a potentially significant impact (Class II). It is expected that the length of time that access would be closed off at any one crossing would range from three days to four weeks, with most crossings access being inaccessible for an average of five to 10 days. Depending on the type of crossing, construction areas will range from 100 feet wide for open cut and bore crossings to a 200 by 100 foot construction area for placement of HDD equipment. Due to noise during construction and disturbance by crews and equipment it is reasonable to expect anglers to keep a buffer of about 500 feet on either side of the water crossings.

At each water crossing it is anticipated fishing access to about 1,100 to 1,200 feet of bank and stream could be blocked for an average of five to 10 days, however the period of time could be as short as three days or as long as four weeks.

Based on available information, it is anticipated that access to boating anglers would not be restricted during construction of HDD crossings. In Pacheco Creek, a navigable waterway, boating could be restricted, as the open cut method is proposed for this crossing. (Note that Mitigation Measure HS-1d would require a bored or HDD crossing at Pacheco Creek.)

Mitigation Measure LU-1a (Construction Notification) in Section D.9 (Land Use) would notify all parties (including anglers) who reside along the construction ROW and staging areas of impending construction. Mitigation Measure RCF-1a is recommended to notify fishing interests who do not live in proximity to the ROW of impending construction.

Mitigation Measure for Impact RCF-1: Construction Impacts on Fishing Access

RCF-1a Notification to Anglers. SFPP shall post construction notices and schedules two weeks prior to expected construction at all fishable pipeline water crossings. Notices shall include times/dates of restricted access, and contact person, with telephone number.

Residual Impact. With implementation of Mitigation Measures LU-1a and RCF-1a, impacts will be less than significant (Class II).

Impact RCF-2: Construction Disturbance to Fisheries Habitat

Pipeline construction across waterways could disturb fisheries habitat. (Potentially Significant, Class II)

Impact Discussion

The significance criteria in Section D.13.3.2 specify that an impact would be considered significant if fishing opportunities are lost or displaced due to adverse effects on fish and habitat. The disturbance is pertinent at all crossings, but is particularly of concern at Walnut Creek, Grayson Creek, Pacheco Creek, Cordelia Slough, Suisun Creek, and Ledgebrook Creek (waterways that are navigable and/or are habitat for steelhead and salmon.) Adverse effects at all crossings, regardless of construction method, include potential disturbance to riparian vegetation by grading and vegetation removal, erosion of soils into the waterways, disturbance of streambeds due to erosion (potentially resulting in release of non-project related contaminants into waterways), reduced water quality due to accidental release of drilling fluids (also called “frac-outs” because drilling fluids follow fractures in rock and sediments), and alteration of streambeds. In addition, HDD sites may need excavated mud pits. Open cut crossings (15 total) will increase disturbance to streambeds, and adversely affect fish habitat. At or around the 28 water crossings, except for the Carquinez Strait crossing, habitat would be disturbed, which could have significant long and short-term effects on fish and human health (Class II).

The Project Description (Section B) references plans to remove debris, restore the sites, and, where appropriate, revegetate and regrade to nearly pre-construction grades.

Mitigation Measures for Impact RCF-2: Construction Disturbance to Fisheries Habitat

The following mitigation measures in other sections of the report, if implemented, would address the potentially significant impacts to fish habitat:

- **Section D.4 (Biological Resources).** Mitigation Measures BW-1a (Pre-construction Surveys), BW-1b (Establish Buffer Zones), BW-1c (Conduct Worker Training), BW-1d (Confine Activity to Identified ROW), BW-1e (Minimize Disturbance at Water Crossings).
- **Section D.6 (Environmental Contamination).** Mitigation Measures EC-1a (Medium Potential Impact Sites), EC-1b (High Potential Impact Sites), EC-1c (Unknown Soil or Groundwater Contamination), EC-3a (Residual Pesticides/Herbicides).
- **Section D.7 (Hydrology and Water Quality).** Mitigation Measures HS-1a (Prepare Plans for Water Crossings), HS-1b (Open Cut Crossing Methods), HS-1c (Erosion Control Procedures), HS-4a (Adequate Pipeline Burial and Protection), HS-6a (Floodplain Protection).

Residual Impact: With incorporation of the measures listed above, impacts would be less than significant (Class II).

Impact RCF-3: Accidents During Construction

Accidents during construction could contaminate fish habitat. (Potentially Significant, Class II)

Impact Discussion

Accidents during construction that will affect fishing access or fish habitat and fish include fuel spills, accidental disposal of debris or materials into waterways and at HDD sites, release of drilling muds from the bore hole, frac-outs, and releases from excavated mud pits. Identified HDD sites in Contra Costa and Solano Counties include Walnut and Grayson Creeks, Peyton Slough, Sulphur Springs Creek, Cordelia Slough, and Ledgewood Creek. To control fuel spills the Proposed Project includes 100-foot setbacks from waterways, use of berms and sorbent materials, and a response plan. Mitigation can reduce the effects of such spills for all but the most serious accidents. Several mitigation measures are presented in other sections to reduce impacts to the extent feasible; impacts are expected to be potentially significant (Class II).

Mitigation Measures for Impact RCF-3: Accidents During Construction

Mitigation Measures S-2d in Section D.2 (Pipeline Safety and Risk of Accidents) and H-5a (in Section D.7, Hydrology and Water Quality) include specific mitigation to address notification to anglers for accidental spills, address assessment of long and short-term damage, and carry out appropriate mitigation/compensation procedures. In addition, Mitigation Measure RCF-3a is required to reduce impacts to less than significant levels.

RCF-3a Debris Disposal Prevention. To limit adverse effects from accidental disposal of debris or construction materials into waterways, prior to construction, SFPP shall develop debris disposal procedures to ensure proper disposal. During construction, workers shall report any disposal of materials into waterways. After construction, measures shall be taken to retrieve materials from waterways and shore side areas.

Residual Impact: The residual impacts of a spill or accidental release of drilling fluids during construction would be less than significant with recommended mitigation (Class II), unless a major release of drilling fluids occurs. A major spill is defined as a spill that would result in lost fishing opportunities due to marina or fishing access closures, adverse effects on fish and habitat or equipment loss, damage or required subsequent replacement

Sacramento–San Joaquin River Delta Fisheries

Impact RCF-1: Construction Impacts on Fishing Access

The Proposed Project will cross 22 waterways in Solano County northeast of Highway 12 and cross 11 waterways in Yolo County. These waterways (bypasses, streams, sloughs, creeks, irrigation canals and ditches) provide wetland habitat and support resident and migratory fishes targeted by anglers. The waterways of greatest concern are tributary to Delta waters and include Laurel Creek, Ulati Creek, Maine Prairie Creek, Hass Slough, Putah Creek, the Yolo Bypass and Washington Lake. Construction will occur during the times of year most popular for fishing (spring, summer, and fall). Crossings will range from 100 to 200 feet wide. One crossing of an unnamed stream will be constructed as an open cut. The significance criteria state that an impact is considered significant if fishing opportunities are lost or displaced due to marina or fishing access closures. Bank fishing access at the crossings will likely be blocked during construction of those specific pipeline segments, resulting in a potentially significant impact (Class II). At each water crossing it is anticipated fishing access to about 1,100 to 1,200 feet of bank and stream could be blocked an average of five to 10 days, however the period of time could be as short as three days or as long as four weeks. Based on available information, it is anticipated that access to boating anglers will not be restricted during construction of HDD crossings.

Mitigation Measures for Impact RCF-1

Mitigation Measure LU-1a (Construction Notification) in Section D.9 (Land Use) will notify anglers who reside within 300 feet of the ROW and staging areas of impending construction. Mitigation Measure RCF-1a, above (Notification to Anglers) would reduce impacts as long as Delta marinas and bait shops in Solano and Yolo Counties are notified.

Residual Impacts: Residual impacts will be less than significant if mitigation measures are implemented (Class II).

Impact RCF-2: Construction Disturbance to Fisheries Habitat

At the 33 water crossings, habitat will likely be disturbed, leading to short and long-term effects on fish. This disturbance will occur at all crossings, but is of particular concern at Laurel Creek, Ulati Creek, Maine Prairie Creek, Hass Slough, Putah Creek, the Yolo Bypass and Washington. Even with incorporation of mitigation measures mentioned in the Proposed Project description, impacts would be potentially significant (Class II).

Mitigation Measures for Impact RCF-2

The following mitigation measures in other sections of the report, if implemented, would address the potentially significant impacts:

- **Section D.4 (Biological Resources).** BW-1a (Pre-construction Surveys), BW-1b (Establish Buffer Zones), BW-1c (Conduct Worker Training), BW-1d (Confine Activity to Identified ROW), BW-1e (Minimize Disturbance at Water Crossings).
- **Section D.6 (Environmental Contamination).** EC-1a (Medium Potential Impact Sites), EC-1b (High Potential Impact Sites), EC-1c (Unknown Soil or Groundwater Contamination), EC-3a (Residual Pesticides/Herbicides).
- **Section D.7 (Hydrology and Water Quality).** HS-1a (Prepare Plans for Water Crossings), HS-1b (Open Cut Crossing Methods), HS-1c (Erosion Control Procedures), HS-4a (Adequate Pipeline Burial and Protection), HS-6a (Floodplain Protection).

Residual Impacts: Residual impacts will be less than significant if mitigation measures are implemented (Class II).

Impact RCF-3: Accidents During Construction

Fuel spills, accidental disposal of debris into waterways, and drill mud releases at HDD sites are examples of construction accidents that could occur. Identified HDD sites include Ulatis Creek, Hass Slough, Putah Creek, an unnamed canal crossing at Crossing #60, Yolo Bypass, and Washington Lake (Class II).

Mitigation Measures for Impact RCF-3

Mitigation Measures S-2d in Section D.2 (Pipeline Safety and Risk of Accidents) and H-5a (in Section D.7, Hydrology and Water Quality) include specific mitigation to address notification to anglers for accidental spills, to address assessment of long and short-term damage and carry out appropriate mitigation/compensation procedures. In addition to those measures, Mitigation Measure RCF-3a is recommended.

Residual Impacts: Residual impacts will be less than significant if mitigation measures are implemented (Class II).

D.13.3.4 Environmental Impacts of the Cordelia Mitigation Segment

This mitigation segment was developed to avoid sensitive biological and water resources within Cordelia Marsh and Slough. The 2.6-mile segment diverges from the proposed route at MP 17.6 and rejoins the proposed route at approximately MP 20.0. The Cordelia Mitigation Segment parallels Ramsey Road until Cordelia Road, where it continues along Cordelia Road to the UPRR ROW where it rejoins the proposed route (see Figure D.4-3).

Implementation of the Cordelia Mitigation Segment, although it would cross several waterways tributary to Cordelia Marsh and Carquinez Strait including Green Valley and Dan Wilson Creeks, would eliminate the portion of the proposed route that crosses the biologically sensitive Cordelia Marsh. The marsh area is also connected to the Carquinez Strait. Accidental product spills in the marsh area could adversely affect fishery habitat. Pipeline construction within the marsh area could disturb fisheries habitat, resulting in impacts that could be reduced to less than significant with mitigation (Class II). In addition, the alternative alignment would eliminate the need to bore under Cordelia Creek, which could additionally damage fisheries due to directional drilling fluid seepage (Class II). The Cordelia Mitigation Segment is preferred over the Proposed Project segment. However, impacts would still remain from crossing waterways tributary to Carquinez Strait. Mitigation measures as described in RCF-1 through RCF-4 would reduce impacts to less than significant levels.

D.13.3.5 Impacts of Pipeline Accidents

San Francisco Bay Estuary – Carquinez Strait and Suisun Bay

Impact RCF-4: Accidents During Operation

Accidents during operation could restrict fishing access, contaminate fish habitat and fishing gear. (Significant, Class I)

Impact Discussion

Depending on affected fisheries and the extent of impacts from spill accidents, impacts can be minor and localized or large and affect whole regions. The severity of impacts will depend on the following: size of

the spill, composition of the product, characteristics of the spill (instantaneous vs. prolonged discharge, surface vs. subsurface spill, and so forth), environmental conditions and effect of weathering on spill properties and effectiveness of response and clean-up operations. The length of time needed to clean up a spill is a factor, and based on data from actual spills, is variable and difficult to predict (Chambers, 1994).

Based on accident statistics for pipelines in California carrying crude oil, refined petroleum products and other hazardous materials (as described in Section D.2), it is anticipated that spills of any size would likely occur every five years. Spills of 50 bbl or greater would likely occur every 13 years somewhere along the proposed pipeline during operation. Two spill scenarios associated with operation of refined petroleum product pipelines were developed, one upstream of the Carquinez Strait and another near Cordelia Creek. The intent of the scenarios was to determine the amount of oil that would be released during a complete pipeline severance, a 100 bbl per hour release and a 1 bbl per hour release. The size of the spills in the scenarios ranges from 314 bbl to 4,622 bbl (see Section D.2). The scenarios did not address the potential spread or footprint of the modeled oil spills.

Two crude oil spills of 1,000 bbl near the proposed Carquinez Strait pipeline crossing were modeled for the Unocal Marine Terminal Environmental Impact Report. That analysis demonstrated that the Bay shrimp commercial fishery and recreational salmon, sturgeon, and bass fishing areas in the Carquinez Strait are at high to moderate risk of being affected by a spill. Suisun Bay fishing areas are also vulnerable. Species in Suisun Bay vary with freshwater outflow and tidal influence. During wet to normal rainfall years, species of concern include salmon, sturgeon, steelhead, shrimp, and bass. During droughts halibut, perch, crab, and other marine species may be vulnerable (Chambers Group, Inc., 1994).

Significant impacts (Class I) to recreational and commercial fisheries (including access to fishing areas, fish habitat and fishing gear) would result from contact with product from the proposed pipeline. Shore side fishing areas at highest risk of spill contamination are western Suisun Bay, Honker Bay, the mouth of the Sacramento River, and Carquinez Strait. Depending on water and weather conditions, areas upstream of the confluence of the Sacramento and San Joaquin rivers may also suffer harm. In addition, marinas, launch ramps, and fishing access points may be threatened, contaminated or closed.

Compliance with the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act with respect to (a) product spill prevention and response, (b) fisheries and fisheries habitat rehabilitation, (c) providing training to fishing operators and mariners knowledgeable about local aquatic conditions, and (d) providing financial compensation for losses due to marina and fishing access closures, adverse effects on fish and habitat and equipment or vessel loss, damage or required replacement would address some of the impacts. In addition, Mitigation Measure S-2a (Supplemental Spill Response Plan) and the following mitigation measure are recommended.

Mitigation Measure for Impact RCF-4: Accidents During Operation

RCF-4a Notice to Anglers After Accident. In addition to compliance with the Spill Prevention and Response Act and Mitigation Measure S-2a, SFPP shall provide notification at spill sites and nearby or affected marinas, launch ramps, and fishing access points that warn fishing interests of location of contaminated sites.

Residual impacts: Residual impacts are expected to remain significant and unmitigable (Class I). **A Statement of Overriding Considerations would be required for project approval.** These impacts are expected to remain significant over the short and long term. Over the short term (less than a year), opportunities would be lost while fishing areas are inaccessible. These impacts may be especially acute for anglers who depend on fishing for a major source of food. Over the long term, impacts could result if, for example, areas remain closed due to contamination or public fears of eating contaminated fish result.

Sacramento–San Joaquin River Delta Fisheries

Impact RCF-4: Accidents During Operation

Based on pipeline accident statistics for pipelines in California carrying crude oil, refined petroleum products and other hazardous materials (Section D.2), it is anticipated that spills of any size would likely occur every five years. Spills of 50 bbl or greater would likely occur every 13 years somewhere along the proposed pipeline during operation. Two spill scenarios associated with operation of refined petroleum product pipelines were developed, one near MP 27.7 in Solano County and another near the Sacramento River in West Sacramento. The intent of the scenarios is to determine the amount of product that would be released during a complete pipeline severance, a 100 bbl per hour release and a 1 bbl per hour release. The size of the spills in the scenarios ranges from 435 bbl to 10,153 bbl (see Section D.2).

As stated for the Bay, significant (Class I) impacts to recreational fisheries would result from contact with product from the proposed pipeline. Although all water crossings are vulnerable to spills, areas of particular concern include Laurel Creek, Ulatis Creek, Maine Prairie Creek, Hass Slough, Putah Creek, The Yolo Bypass, and Washington Lake. In addition, spills may spread to local marinas, launch ramps, and fishing access points.

Compliance with the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act and Mitigation Measures S-2d (Supplemental Spill Response Plan) and RCF-4a would address areas precluded to fishing during a spill and cleanup. Residual impacts are expected to remain significant (Class I).

D.13.3.6 Impacts of Pipeline Operation

Impacts from normal operation are expected to not be significant (Class III), because access to fishing areas is not expected to be restricted.

D.13.3.7 Impacts of Proposed Station Changes

The proposed station changes at Concord and Sacramento are not expected to create adverse impacts on fisheries.

D.13.3.8 Cumulative Impacts

Impact RCF-5: Cumulative Impacts of Construction on Fisheries

Cumulative effects of construction and potential accidents could result in long-term degradation of fisheries habitat. (Less than Significant, Class III)

Impact Discussion

The projects included in the cumulative impacts scenario reflect increased urbanization near the Bay and Delta. Long-term degradation of the Bay-Delta will likely be exacerbated by the projects included in the cumulative impacts scenario and the Proposed Project. To offset some of these effects, intense efforts are underway to restore the Bay-Delta system. Restoration of fish habitat in the Sacramento and San Joaquin watershed, including the Delta and the Bay, is increasing in response to listing of species as threatened and/or endangered. Also, negotiations over increasing water flows from upstream water developments and diversions in the rivers and Delta are ongoing. If these efforts are successful in, at a minimum, arresting the degradation or at best, enhancing habitat and populations, beneficial effects to fish and habitat may be seen in 10 to 20 years.

Another effect of increased urbanization may be an increased interest in the Bay-Delta as a fishery. Together with the attention focused on restoration and enhancement, recreational fishing activities may increase. If demand increased, agencies and stewards will have the continued responsibility to ensure sustainability of the resource.

Overall cumulative impacts of construction activities, accidents and operation will be potentially significant, but the contribution of the Proposed Project will be less than significant (Class III).

Mitigation Measure: None required.

Residual Impact: Residual impacts would be less than significant (Class III).

D.13.4 Environmental Impacts and Mitigation Measures for Existing Pipeline ROW Alternative

Impacts of building the 64-mile Existing Pipeline ROW Alternative would be similar to those of constructing the Proposed Project (refer to Impacts RCF-1 through RCF-3). The following mitigation measures in other sections of the report, if implemented, would address the potentially significant impacts:

- **Section D.4 (Biological Resources).** BW-1a (Pre-construction Surveys), BW-1b (Establish Buffer Zones), BW-1c (Conduct Worker Training), BW-1d (Confine Activity to Identified ROW), BW-1e (Minimize Disturbance at Water Crossings).
- **Section D.6 (Environmental Contamination).** EC-1a (Medium Potential Impact Sites), EC-1b (High Potential Impact Sites), EC-1c (Unknown Soil or Groundwater Contamination), EC-3a (Residual Pesticides/Herbicides).
- **Section D.7 (Hydrology and Water Quality).** HS-1a (Prepare Plans for Water Crossings), HS-1b (Open Cut Crossing Methods), HS-1c (Erosion Control Procedures), HS-4a (Adequate Pipeline Burial and Protection), HS-6a (Floodplain Protection).

Mitigation Measure S-2d (in Section D.2 Pipeline Safety and Risk of Accidents) requires a supplement spill response plan and measure H-5a (in Section D.7, Hydrology and Water Quality) requires preparation of a plan for response to accidental drilling fluid releases that would ensure a series of actions in immediate response to such an event. In addition to those measures, Mitigation Measure RCF-3a is recommended. All construction impacts, including the potential for fuel spills and accidental releases of drilling fluids, would be mitigable to less than significant levels (Class II) with implementation of mitigation.

The potential for a pipeline accident along the Existing Pipeline ROW Alternative would be the same as that of the Proposed Project, Class I, as defined in Section D.13.3.5. Compliance with the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act and Mitigation Measures S-2a (Supplemental Spill Response Plan) and RCF-4a would reduce impacts from a spill (Impact RCF-4), but residual impacts would be significant and likely more adverse than accident related impacts from the proposed project pipeline.

Impacts from normal operation of the Existing Pipeline ROW Alternative are expected to be less than significant (Class III), as long as access to fishing areas is not restricted.

Mitigation Segment EP-1

Mitigation Segment EP-1 (Figure D.4-4) would route the existing pipeline around Cordelia Marsh and avoid fisheries habitat in the Marsh, although it would still traverse waterways including Green Valley and Don Wilson Creeks. Mitigation Segment EP-1 is preferred over the Existing Pipeline ROW Alternative as avoiding the Marsh would decrease impacts. However, impacts would still remain from crossing waterways tributary to Carquinez Strait. Mitigation measures as described for Impacts RCF-1 through RCF-4 would reduce impacts to less than significant levels, except for a major pipeline accident (Impact RCF-4).

Mitigation Segment EP-2

The Davis Mitigation Segment EP-2 (Figure D.9-2) crosses major creeks and would result in locating the pipeline closer to the Sacramento River. Even with implementing mitigation measures for Impacts RCF-1 through RCF-4, impacts on fisheries would be more significant than impacts from the Existing Pipeline ROW Alternative. Therefore, the original route is preferred.

D.13.5 Environmental Impacts of the No Project Alternative

Replacement or repair of approximately 12 miles of the existing pipelines (Concord-Sacramento and Concord-Stockton–East Sacramento) would likely result in adverse but not significant (Class III) impacts. However, the risk of spills from continued use of the existing pipeline would be higher than projected for the proposed pipeline (see Section D.2). Impact RCF-4 (Accidents During Pipeline Operation) on fisheries would be Class I, significant.

D.13.6 Mitigation Monitoring, Compliance, and Reporting Table

Table F-13 summarizes the recommended mitigation measures with the actions that would be necessary to ensure compliance.